

# Variants of Problem Formulation

- **Binary** categorization: Only two categories
  - Retrieval: {relevant-doc, non-relevant-doc}
  - Spam filtering: {spam, non-spam}
  - Opinion: {positive, negative}
- **K-category** categorization: More than two categories
  - Topic categorization: {sports, science, travel, business,...}
  - Email routing: {folder1, folder2, folder3,...}
- **Hierarchical** categorization: Categories form a hierarchy
- **Joint** categorization: Multiple **related** categorization tasks done in a joint manner

Binary categorization can potentially support all other categorizations